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APPLICANT : SUMITOMO METAL IND LTD;

INVENTOR : MINAMI TAKAO;

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TITLE : GRAIN BOUNDARY DAMAGE RESISTANT NI BASE ALLOY AND ITS MANUFACTURE

ABSTRACT : PURPOSE: To develop a corrosion resistant Ni base alloy superior in grain boundary damage resistance in high temp., high pressure water circumstance, by annealing an Ni base alloy having a specified compsn., then heating rapidly and melting the surface, cooling rapidly and solidifying the surface to make it amorphous.

CONSTITUTION: Ingot of the Ni base alloy composed of, by weight <0.07% C, <1.0% Si, <1.0% Mn, 14~35% Cr, 50~80% Ni, 0.05~1.0% Ti, 0.1~1.0% Al, <0.10% N and the balance Fe is manufactured. This is forged and hot rolled to plate material, further said plate is cold rolled to the final thickness, then annealed. Successively, said sheet is heat treated at 650~750°C for 0.1~100hr, then only surface layer is heated rapidly and melted by laser irradiation, etc., successively cooled rapidly by cooling gas blowing, etc. to make it amorphous structure. Ni base alloy superior in grain boundary damage resistance, used under high temp. high pressure circumstance such as steam generator heat transfer tube, etc. of pressurized nuclear reactor is obtd.

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